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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/700,610	NISHIO ET AL.	
	Examiner	Art Unit	
	James Sheleheda	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 04/11/07 have been fully considered but they are not persuasive.

On page 33, of applicant's response, applicant argues that Maissel fails to suggest that the meta information and meta information schema of a program schedule are customized.

In response, Maissel discloses altering the order in which the programs and channels may be displayed (page 21, lines 1-21). As the layout of the program information comprises the "schema", this clearly reads upon customization of the schema.

Further, Maissel discloses adding and removing programs from the guide (page 21, lines 1-21). As the program information, such as title, is the "meta information", this clearly reads upon customization of the meta information.

On pages 33-34, of applicant's response, applicant argues that Maissel and Hendricks fails to disclose "wherein use history information of meta information is periodically received from the receiving apparatus and wherein attributes, whose applied frequencies are low as indicated by the use history information are deleted from said meta information schema".

In response, Maissel specifically discloses wherein the system will record a "use history", as the profile contains records of the programming viewed and desired by the viewer (page 18, lines 18-30). The record of which programming was viewed by the user is then utilized to modify the program guide in removing certain programs from the program guide (page 20, lines 19-31, page 21, lines 1-5 and page 27, line 28-page 28, line 11). Thus, applicant's arguments are not convincing, as Maissel clearly meets the claim limitations as user viewing habits, indicating whether programming was frequently viewed or not, is utilized when determining which programs are no longer displayed in the program guide.

In response to applicant's arguments regarding improving a searching efficiency of the meta information wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments, these arguments are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maissel et al. (Maissel) (WO 99/01984) (of record) in view of Hendricks et al. (Hendricks) (5,559,549) (of record) and Cobbley et al. (Cobbley) (5,614,940).

As to claim 1, Maissel discloses a transmitting apparatus for providing digital content (Fig. 8B, headend, 340; page 30, lines 20-27), comprising:

meta information storing means for storing meta information about data that is transmitted (Fig. 8B, headend, 340 containing EPG program schedule information to be customized; page 29, lines 3-9 and page 16, lines 24-31);

identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13);

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about the content data according to the content data that is transmitted (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27);

wherein the meta information schema is periodically updated to effectively add, delete and transmit the meta information (as the program guide information changes over time to represent programming for the next time period; page 16, line 17-page 17, line 16);

inference rule storing means for storing an inference rule defined by the data structure of meta information about the content data that is transmitted (inference rules

based upon the user profile to customize EPG data; page 27, lines 28-31, page 28, lines 1-11 and page 30, lines 20-27); and

transmitting means for transmitting the meta information, the meta information schema, the inference rule, and the content data through a transmission path when the inference rule and the meta information schema is not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein use history information of meta information is periodically received from the receiving apparatus (viewing history; page 18, lines 18-30) and wherein attributes, whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30) are deleted from said meta information schema (page 21, lines 1-5).

While Maissel discloses transmitting the meta information and the content data when the inference rule and the meta information schema is stored in the receiving

apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and improving a searching efficiency of the meta information wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the

content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include improving a searching efficiency of the meta information wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 2, Maissel discloses a transmitting apparatus for providing digital content (Fig. 8B, headend, 340), comprising:

meta information storing means for storing meta information about content data that is transmitted (Fig. 8B, headend, 340 containing EPG program schedule information to be customized; page 29, lines 3-9 and page 16, lines 24-31);

identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13);

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about the content data according to the content data that is transmitted (default EPG data before customization at a user site; page 20, lines 19-31 and page 21, lines 1-5);

transmitting means for transmitting the meta information, the meta information schema, and the content data through a transmission path when an inference rule and the meta information schema are not stored in a receiving apparatus (transmitting the updated program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

communication controlling means for communicating with a receiving apparatus (page 28, lines 25-30); and

changing means for changing the structure of the meta information schema that has been stored said meta information schema storing means and the meta information that has been stored in said meta information storing means corresponding to content data that has been received through said communication controlling means (preparing customized EPG data for a particular site based upon a received profile; page 28, lines 17-24 and page 29, lines 1-9);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein said communication controlling means periodically receives use history information of meta information from the receiving apparatus (viewing history; page 18, lines 18-30); and

wherein said changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30 and page 21, lines 1-5).

While Maissel discloses transmitting the meta information and the content data when the inference rule and the meta information schema is stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth

requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 3, Maissel discloses a transmitting apparatus for providing digital content (Fig. 8B, headend, 340; page 30, lines 20-27), comprising:

meta information storing means for storing meta information about content data that is transmitted (Fig. 8B, headend, 340 containing EPG program schedule information to be customized; page 29, lines 3-9 and page 16, lines 24-31);

identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13);

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about the content data according to the content that is transmitted (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27);

inference rule storing means for storing an inference rule defined by the data structure of meta information about data that is transmitted (inference rules based upon the user profile to customize EPG data; page 27, lines 28-31, page 28, lines 1-11 and page 30, lines 20-27); and

transmitting means for transmitting the meta information, the meta information schema, the inference rule, and the content data through a transmission path when the inference rule is not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

communication controlling means for communicating with a receiving apparatus (page 28, lines 25-30); and

changing means for changing the inference rule (user profile containing inference rules; page 27, lines 28-31 and page 28, lines 1-9) that has been stored in said inference rule storing means (wherein the profile, and the contained rules, are updated with viewing information; page 28, lines 25-31 and page 29, lines 1-9) corresponding to content data that has been received through said communication controlling means (television viewing information received through an upstream modem; page 28, lines 25-31);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein said communication controlling means periodically receives use history information of meta information from the receiving apparatus (viewing history; page 18, lines 18-30); and

wherein said changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30 and page 21, lines 1-5).

While Maissel discloses transmitting the meta information and the content data when the inference rule is stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 4, Maissel, Hendricks and Cobbley disclose converting means for converting the format of the meta information into a transmission format (wherein the guide information must be formatted for transmission over the television broadcast channels; see Maissel at page 16, lines 12-17).

As to claims 5 and 23, Maissel, Hendricks and Cobbley disclose wherein content data that has been received through said communication controlling apparatus is data that represents a use history of meta information of the receiving apparatus (a user's television viewing history; see Maissel at page 28, lines 25-30).

As to claim 6, Maissel discloses a receiving apparatus for receiving data for providing digital content, comprising:

receiving means (Fig. 2; receiving unit, 120) for receiving at least meta information and content data through a transmission path when an inference rule is not stored in the receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

wherein the receiving means receives identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13);

meta information schema storing means for storing a meta information schema (customization instructions for EPG layout; page 20, line 19 – page 22, line 17);

profile operating means (Fig. 2; Intelligent agent, 130) for operating selection criterion for selecting meta information corresponding to the meta information schema (performing the EPG customization; page 20, lines 19-31 and page 22, line 17);

user profile storing means (Fig. 2; profile storage unit, 140) for storing a user profile generated by said profile operating means (page 18, lines 18-27);

meta information filtering means (130) for selecting and receiving meta information corresponding to the user profile (performing the EPG customization based upon a user preference profile; page 20, lines 19-31 and page 22, lines 1-17);

meta information storing means for storing meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18);

meta information operating means for searching and/or browsing meta information (page 31, lines 11-13);

inference rule storing means (Fig. 2; profile storage unit, 140) for storing the inference rule defined by the data structure of meta information (inference rules based upon the user profile to customize EPG data; page 27, lines 28-31 and page 28, lines 1-11);

data storing means for receiving and storing data of contents represented by the meta information that has been selected (recording programs corresponding to EPG selections; page 8, lines 10-12 and page 21, lines 21-22); and

a data operating portion for operating data that has been stored in said data storing means (operating the software controlling the system; page 15, line 29-31 and page 16, lines 1-3);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses receiving the meta information and the content data when the inference rule and the meta information schema is stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 7, Maissel discloses a receiving apparatus for receiving data for providing digital content data (110), comprising:

receiving means (Fig. 2; receiving unit, 120) for receiving at least meta information and the content data through a transmission path (television programs and program schedule information; page 17, lines 24-29) and receiving identifier data associated with a particular portion of the content data that is adapted to distinguish a

segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) when the inference rule is not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

meta information schema storing means for storing a meta information schema that defines the data structure of meta information (customization instructions for EPG layout; page 20, line 19 – page 22, line 17);

profile operating means (Fig. 2; Intelligent agent, 130) for operating selection criterion for selecting meta information corresponding to the meta information schema (performing the EPG customization; page 20, lines 19-31 and page 22, line 17);

user profile storing means (Fig. 2; profile storage unit, 140) for storing a user profile generated by said profile operating means (page 18, lines 18-27);

meta information filtering means (130) for selecting and receiving meta information corresponding to the user profile (performing the EPG customization based upon a user preference profile; page 20, lines 19-31 and page 22, lines 1-17);

meta information storing means for storing meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18);

meta information operating means for searching and/or browsing meta information (page 31, lines 11-13);

inference rule storing means (Fig. 2; profile storage unit, 140) for storing an inference rule about the data structure of meta information (inference rules based upon the user profile to customize EPG data; page 27, lines 28-31 and page 28, lines 1-11);

changing means for changing the structure of the meta information schema that has been stored in said meta information schema storing means and the meta information that has been stored in said meta information storing means (customizing the EPG structure based upon **current** user profiles and preferences; page 20, lines 19-page 22, lines 17) corresponding to the user profile that has been stored in said user profile storing means (page 19, lines 1-8 and page 20, lines 19-27) and to the inference rule that has been stored in said inference rule storing means (page 27, lines 28-31 and page 28, lines 1-11);

data storing means for receiving and storing data of contents represented by the meta information that has been selected (recording programs corresponding to EPG selections; page 8, lines 10-12 and page 21, lines 21-22); and

a data operating portion for operating data that has been stored in said data storing means (operating the software controlling the system; page 15, line 29-31 and page 16, lines 1-3);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data

corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses receiving the meta information, the identifier data and the content data when the inference rule and the meta information schema is stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth

requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 8, Maissel, Hendricks and Cobbley disclose wherein said changing means changes the meta information schema that has been stored in said meta information schema storing means and the meta information that has been stored in

said meta information storing means corresponding to a use history of meta information of a user (a user's viewing history; see Maissel at page 28, lines 25-30).

As to claim 9, Maissel, Hendricks and Cobbley disclose wherein said changing means changes the meta information schema corresponding to a user's setup (see Maissel at page 19, lines 9-18) and stores the changed meta information schema and changed meta information to said meta information schema storing means (user profile indicating how to modify the EPG; see Maissel at page 19, lines 9-18) and said meta information storing means (the customized EPG; see Maissel at page 20, lines 19-page 22, lines 17), respectively.

As to claim 10, Maissel discloses a transmitting and receiving apparatus having a transmitting apparatus for providing digital content (Fig. 8B, headend, 340; page 30, lines 20-27) and a receiving apparatus for receiving digital content (110),

wherein the transmitting apparatus comprises:

meta information storing means for storing meta information about content data that is transmitted (Fig. 8B, headend, 340 containing EPG program schedule information to be customized; page 29, lines 3-9 and page 16, lines 24-31);

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about content data according to the content data that is transmitted (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27);

inference rule storing means for storing an inference rule defined by the data structure of meta information about content data that is transmitted (inference rules based upon the user profile to customize EPG data; page 27, lines 28-31, page 28, lines 1-11 and page 30, lines 20-27); and

transmitting means for transmitting the meta information, the meta information schema, the inference rule, and content data through a transmission path when the inference rule and the meta information schema is not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27), and

wherein use history information of meta information is periodically received from the receiving apparatus (viewing history; page 18, lines 18-30) and wherein attributes, whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30) are deleted from said meta information schema (page 21, lines 1-5);

wherein the receiving apparatus comprises:

receiving means (Fig. 2; receiving unit, 120) for receiving the meta information, the meta information schema, the inference rule, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) and content data through a transmission path (television programs and program schedule information; page 17, lines 24-29 and page 30, lines

20-27) when the inference rule and meta information schema are not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

meta information schema storing means the received meta information schema (default EPG schedule data before customization; page 24, lines 27-31 and page 25, lines 1-3);

profile operating means (Fig. 2; Intelligent agent, 130) for operating a selection criterion for selecting meta information corresponding to the meta information schema (performing EPG customization; page 20, lines 19-31 and page 22, line 17);

user profile storing means (Fig. 2; profile storage unit, 140) for storing a user profile generated by said profile operating means (page 18, lines 18-27);

meta information filtering means (130) for selecting and receiving meta information corresponding to the user profile (performing the EPG customization based upon a user preference profile; page 20, lines 19-31 and page 22, lines 1-17);

meta information storing means for storing meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18);

meta information operating means for searching and/or browsing meta information (page 31, lines 11-13);

inference rule storing means (Fig. 2; profile storage unit, 140) for storing an inference rule that has been received (inference rule contained within the user profile; page 27, lines 28-31, page 28, lines 1-11 and page 30, lines 20-27);

data storing means for receiving and storing data of content that is represented by the selected meta information (recording programs corresponding to EPG selections; page 8, lines 10-12 and page 21, lines 21-22); and

a data operating portion for operating data that has been stored in said data storing means (operating the software controlling the system; page 15, line 29-31 and page 16, lines 1-3);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses transmitting and receiving the meta information and the content data when the inference rule and the meta information schema is stored in the

receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the

content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 11, Maissel discloses a transmitting and receiving apparatus having a transmitting apparatus for providing digital content (Fig. 8A, headend, 340; page 28, lines 12-24) and a receiving apparatus for receiving digital content (110),

wherein the transmitting apparatus comprises:

meta information storing means for storing meta information about content data that is transmitted (Fig. 8A, headend, 340 containing EPG program schedule information to be customized; page 29, lines 3-9 and page 16, lines 24-31);

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about content data according to the content data that is transmitted (the default EPG data before customization for a user site; page 20, lines 19-31, page 21, lines 1-5 and page 29, lines 1-9);

transmitting means for transmitting the meta information, the meta information schema, and content data through a transmission path when the inference rule and the

meta information schema are not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

communication controlling means for communicating with a receiving apparatus (page 28, lines 25-30); and

changing means for changing the structure the meta information schema that has been stored in said meta information storing means and the meta information that has been stored in said meta information storing means corresponding to content data that has been received from a receiving apparatus (preparing customized EPG data for a particular site based upon a received profile; page 28, lines 17-24 and page 29, lines 1-9), and

wherein said communication controlling means periodically receives use history information of meta information from the receiving apparatus (viewing history; page 18, lines 18-30); and

wherein said changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30 and page 21, lines 1-5);

where the receiving apparatus comprises:

receiving means (Fig. 2; receiving unit, 120) for receiving the meta information, the meta information schema, identifier data associated with a particular portion of the

content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) and content data through a transmission path (television programs and program schedule information; page 17, lines 24-29 and page 30, lines 20-27);

meta information schema storing means for storing meta information schema that has been received (wherein the customized EPG data and format must be stored upon receipt; page 24, lines 27-31, page 25, lines 1-3 and page 29, lines 1-9);

profile operating means for operating a selection criterion for selecting meta information corresponding to the meta information schema (wherein viewer information is selectively stored and transmitted for later EPG customization; page 17-31);

user profile storing means (page 28, lines 17-31) for storing a user profile generated by said profile operating means (wherein the profile data must be stored before transmission to the headend; page 28, lines 17-31);

meta information filtering means for selecting and receiving meta information corresponding to the user profile (receiving the EPG customized based upon a user profile; page 20, lines 19-31, page 22, lines 1-17 and page 29, lines 1-9);

meta information storing means for storing meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18);

meta information operating means for searching and/or browsing meta information (page 31, lines 11-13);

data storing means for receiving and storing data of content that is represented by the selected meta information (recording programs corresponding to EPG selections; page 8, lines 10-12 and page 21, lines 21-22); and

a data operating portion for operating data that has been stored in said data storing means (operating the software controlling the system; page 15, line 29-31 and page 16, lines 1-3); and

communication controlling means for transmitting data to the transmitting apparatus (page 28, lines 25-31);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses transmitting the meta information and the content data when the inference rule and the meta information schema is stored in the receiving apparatus (transmitting updates to the program guide data with the television

programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), h he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of

reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 12, Maissel discloses a transmitting and receiving apparatus having a transmitting apparatus for providing digital content (Fig. 8B, headend, 340; page 30, lines 20-27) and a receiving apparatus for receiving digital content (110),

wherein the transmitting apparatus comprises:

meta information storing means for storing meta information about content data according to the content data that is transmitted (Fig. 8B, headend, 340 containing EPG program schedule information to be customized; page 29, lines 3-9 and page 16, lines 24-31);

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about data that is transmitted (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27);

inference rule storing means for storing an inference rule about the data structure of meta information about content data that is transmitted (inference rules based upon

the user profile to customize EPG data; page 27, lines 28-31, page 28, lines 1-11 and page 30, lines 20-27); and

transmitting means for transmitting the meta information, the meta information schema, the inference rule, and content data through a transmission path when the inference rule and the meta information schema are not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

communication controlling means for communicating with a receiving apparatus (page 28, lines 25-30); and

changing means for changing the inference rule (user profile containing inference rules; page 27, lines 28-31 and page 28, lines 1-9) that has been stored in said inference rule storing means (wherein the profile, and the contained rules, are updated with viewing information; page 28, lines 25-31 and page 29, lines 1-9) corresponding to content data that has been received through said communication controlling means (television viewing information received through an upstream modem; page 28, lines 25-31); and

wherein said communication controlling means periodically receives use history information of meta information from the receiving apparatus (viewing history; page 18, lines 18-30); and

wherein said changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information

(programming not viewed and preferred by the user; page 18, lines 18-30 and page 21, lines 1-5);

wherein the receiving apparatus comprises:

receiving means (Fig. 2; receiving unit, 120) for receiving the meta information, the meta information schema, the inference rule, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) and contents data through a transmission path (television programs and program schedule information; page 17, lines 24-29 and page 30, lines 20-27);

meta information schema storing means for storing the meta information schema that has been received (default EPG schedule data before customization; page 24, lines 27-31 and page 25, lines 1-3);

profile operating means (Fig. 2; Intelligent agent, 130) for operating a selection criterion for selecting meta information corresponding to the meta information schema (performing EPG customization; page 20, lines 19-31 and page 22, lines 1-17);

user profile storing means (Fig. 2; profile storage unit, 140) for storing a user profile generated by said profile operating means (page 18, lines 18-27);

meta information filtering means (130) for selecting and receiving meta information corresponding to the user profile (performing the EPG customization based upon a user preference profile; page 20, lines 19-31 and page 22, line 17);

meta information storing means for storing meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18);

meta information operating means for searching and/or browsing meta information (page 31, lines 11-13);

inference rule storing means (Fig. 2; profile storage unit, 140) for storing an inference rule that has been received (inference rule contained within the user profile; page 27, lines 28-31, page 28, lines 1-11 and page 30, lines 20-27);

data storing means for receiving and storing data of content that is represented by the selected meta information (recording programs corresponding to EPG selections; page 8, lines 10-12 and page 21, lines 21-22);

a data operating portion for operating data that has been stored in said data storing means (operating the software controlling the system; page 15, line 29-31 and page 16, lines 1-3); and

communication controlling means for transmitting data to the transmitting apparatus (page 28, lines 25-31);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16,

line 24-page 17, line 16); wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses transmitting the meta information and the content data when the inference rule and the meta information schema is stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 13, Maissel discloses a transmitting and receiving apparatus having a transmitting apparatus for providing digital content (Fig. 8B, headend, 340; page 30, lines 20-27) and a receiving apparatus for receiving digital content (110),

wherein the transmitting apparatus comprises:

meta information storing means for storing meta information about content data according to the content data that is transmitted (Fig. 8B, headend, 340 containing EPG

program schedule information to be customized; page 29, lines 3-9 and page 16, lines 24-31);

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about content data that is transmitted (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27);

inference rule storing means for storing an inference rule about the data structure of meta information about content data that is transmitted (inference rules based upon the user profile to customize EPG data; page 27, lines 28-31, page 28, lines 1-11 and page 30, lines 20-27); and

transmitting means for transmitting the meta information, the meta information schema, the inference rule, and content data through a transmission path when the inference rule and the meta information schema are not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27), and

wherein use history information of meta information is periodically received from the receiving apparatus (viewing history; page 18, lines 18-30) and wherein attributes, whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30) are deleted from said meta information schema (page 21, lines 1-5);

wherein the receiving apparatus comprises:

receiving means (Fig. 2; receiving unit, 120) for receiving the meta information, the meta information schema, the inference rule, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) and content data through a transmission path (television programs and program schedule information; page 17, lines 24-29 and page 30, lines 20-27);

meta information schema storing means for storing the meta information schema that has been received (default EPG schedule data before customization; page 24, lines 27-31 and page 25, lines 1-3);

profile operating means (Fig. 2; Intelligent agent, 130) for operating a selection criterion for selecting meta information corresponding to the meta information schema (performing EPG customization; page 20, lines 19-31 and page 22, line 17);

user profile storing means (Fig. 2; profile storage unit, 140) for storing a user profile generated by said profile operating means (page 18, lines 18-27);

meta information filtering means (130) for selecting and receiving meta information corresponding to the user profile (performing the EPG customization based upon a user preference profile; page 20, lines 19-31 and page 22, line 17);

meta information storing means for storing meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18);

meta information operating means for searching and/or browsing meta information (page 31, lines 11-13);

inference rule storing means (Fig. 2; profile storage unit, 140) for storing an inference rule that has been received (inference rule contained within the user profile; page 27, lines 28-31, page 28, lines 1-11 and page 30, lines 20-27);

changing means for changing the structure of the meta information schema that has been stored in said meta information schema storing means and the meta information that has been stored in said meta information storing means (customizing the EPG structure based upon **current** user profiles and preferences; page 20, lines 19-page 22, lines 17) corresponding to the user profile that has been stored in said user profile storing means (page 19, lines 1-8 and page 20, lines 19-27) and to the inference rule that has been stored in said inference rule storing means (page 27, lines 28-31 and page 28, lines 1-11);

data storing means for receiving and storing data of contents that is represented by the selected meta information (recording programs corresponding to EPG selections; page 8, lines 10-12 and page 21, lines 21-22); and

a data operating portion for operating data that has been stored in said data storing means (operating the software controlling the system; page 15, line 29-31 and page 16, lines 1-3);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses transmitting the meta information and the content data when the inference rule and the meta information schema is stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and

column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 14, Maissel discloses a transmitting method for providing digital content, comprising the steps of:

when meta information about content data that is transmitted (transmitting the program guide data with the television programming; page 16, lines 12-17),

transmitting a meta information schema that defines the data structure of the meta information (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27), identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) and content data through a transmission path (transmitting the program guide data with the television programming; page 16, lines 12-17) when the inference rule and the meta information schema are not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27), and

wherein use history information of meta information is periodically received from the receiving apparatus (viewing history; page 18, lines 18-30) and wherein attributes, whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30) are deleted from said meta information schema (page 21, lines 1-5).

changing the structure the meta information schema and the meta information corresponding to data that has been received from a receiving apparatus (preparing customized EPG data for a particular site based upon a received profile; page 28, lines 17-24 and page 29, lines 1-9) and transmitting the changed data (page 29, lines 4-13);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16).

While Maissel discloses transmitting the identifier data and the content data when the inference rule and the meta information schema is stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth

requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 15, Maissel discloses a transmitting method for providing digital content, comprising the steps of:

when meta information about content data that is transmitted (transmitting the program guide data with the television programming; page 16, lines 12-17),

transmitting a meta information schema that defines the data structure of the meta information (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27), an inference rule about the data structure of the meta information (inference rule contained within the user profile; page 27, lines 28-31, page 28, lines 1-11 and page 30, lines 20-27)and content data through a transmission path (transmitting the program guide data with the television programming; page 16, lines 12-17) including identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) when the meta information and inference rule are not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27),

wherein use history information of meta information is periodically received from the receiving apparatus (viewing history; page 18, lines 18-30) and wherein attributes, whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30) are deleted from said meta information schema (page 21, lines 1-5);

changing the inference rule corresponding to content data that has been received from a receiving apparatus (wherein the profile, and the contained rules, are updated with viewing information; page 28, lines 25-31 and page 29, lines 1-9) and transmitting the changed data (page 29, lines 4-13);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16).

While Maissel discloses transmitting the meta information, the identifier data and the content data when the inference rule and the meta information schema is stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth

requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claims 16 and 24, Maissel, Hendricks and Cobbley disclose receiving a meta information use history from the receiving apparatus (see Maissel at page 28, lines 25-31) and transmitting a meta information schema, meta information and an inference rule that have been changed so that they have respective data structures

corresponding to the meta information use history (transmitting the customized EPG; see Maissel at page 29, lines 1-9).

As to claim 17, Maissel discloses a receiving method for receiving data for providing digital content, comprising the steps of:

storing a meta information schema that defines the data structure of meta information (customization instructions for EPG layout; page 20, line 19 – page 22, line 17);

storing identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13);

storing at least meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18) when the inference rule and meta information schema are not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

searching and/or browsing the meta information (page 31, lines 11-13); and

changing the structure of the meta information schema and meta information that has been stored (customizing the EPG structure based upon **current** user profiles and preferences; page 20, lines 19-page 22, lines 17) corresponding to a user profile (page

19, lines 1-8 and page 20, lines 19-27) and to an inference rule (page 27, lines 28-31 and page 28, lines 1-11);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses storing the meta information and the content data when the inference rule and the meta information schema is stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained

from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 18, Maissel discloses a transmitting and receiving method for providing digital content and receiving digital content, comprising the steps of:

transmitting meta information about content data that is transmitted (transmitting the program guide data with the television programming; page 16, lines 12-17), a meta information schema that defines the data structure of the meta information (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27), identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) and content data through a transmission path when the inference rule and meta information schema are not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

wherein use history information of meta information is periodically received from the receiving apparatus (viewing history; page 18, lines 18-30) and wherein attributes, whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30) are deleted from said meta information schema (page 21, lines 1-5);

changing the structure of the meta information schema that is transmitted corresponding to content data that has been received from a receiving apparatus (preparing customized EPG data for a particular site based upon a received profile; page 28, lines 17-24 and page 29, lines 1-9);

storing a meta information schema that defines the data structure of the meta information that has been received on a receiving side (wherein the customized EPG must be stored before output; page 24, lines 12-18);

storing the meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18); and

searching and/or browsing the meta information (page 31, lines 11-13);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses transmitting the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 19, Maissel discloses a transmitting and receiving method for providing digital content and receiving digital content, comprising the steps of:

transmitting meta information about content data that is transmitted (transmitting the program guide data with the television programming; page 16, lines 12-17), a meta information schema that defines the data structure of the meta information (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27), an inference rule (page 28, lines 1-9 and page 30, lines 20-27), identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) and content data through a transmission path when the inference rule and meta information schema are not

stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

wherein use history information of meta information is periodically received from the receiving apparatus (viewing history; page 18, lines 18-30) and wherein attributes, whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30) are deleted from said meta information schema (page 21, lines 1-5);

changing the inference rule that is transmitted (wherein the profile, and the contained rules, are updated with viewing information; page 28, lines 25-31 and page 29, lines 1-9) corresponding to data that has been received from a receiving apparatus (television viewing information received through an upstream modem; page 28, lines 25-31);

storing a meta information schema that defines the data structure of meta information that has been received on a receiving side (customization instructions for EPG layout; page 20, line 19 – page 22, line 17);

storing meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18); and

searching and/or browsing the meta information (page 31, lines 11-13);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses transmitting the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and

column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claim 20, Maissel discloses a transmitting and receiving method for providing digital content and receiving digital content, comprising the steps of:

transmitting meta information about content data that is transmitted (transmitting the program guide data with the television programming; page 16, lines 12-17), a meta information schema that defines the data structure of the meta information (default EPG data before customization at a user site; page 20, lines 19-31, page 21, lines 1-5 and page 30, lines 20-27), an inference rule (page 28, lines 1-9 and page 30, lines 20-27), identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (program titles identifying program content; Fig. 9A, page 16, line 24-page 17, line 16 and page 31, lines 7-13) and content data through a transmission path when the inference rule and the meta information schema are not stored in a receiving apparatus (transmitting the program guide data with the television programming after the user preference profile has been uploaded out of the receiver to the headend; page 16, lines 12-17 and page 30, lines 20-27);

wherein use history information of meta information is periodically received from the receiving apparatus (viewing history; page 18, lines 18-30) and wherein attributes, whose applied frequencies are low as indicated by the use history information (programming not viewed and preferred by the user; page 18, lines 18-30) are deleted from said meta information schema (page 21, lines 1-5);

storing a meta information schema that defines the data structure of meta information that has been received on a receiving side (customization instructions for EPG layout; page 20, line 19 – page 22, line 17);

storing meta information that has been selected and received (wherein the customized EPG must be stored before output; page 24, lines 12-18); and

changing the structure of the meta information schema and meta information that has been stored (customizing the EPG structure based upon **current** user profiles and preferences; page 20, lines 19-page 22, lines 17) corresponding to a user profile (page 19, lines 1-8 and page 20, lines 19-27) and to an inference rule (page 27, lines 28-31 and page 28, lines 1-11);

wherein the meta information schema includes the identifier data (Fig. 9A; page 16, line 24-page 17, line 16 and page 31, lines 7-13) and attribute names of the content (actor and director names; page 16, line 24-page 17, line 16);

wherein the meta information includes the identifier data (page 16, line 24-page 17, line 16), the attribute names (page 16, line 24-page 17, line 16) and description data corresponding to each attribute name of the content (program descriptions; page 16, line 24-page 17, line 16);

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 18, lines 18-30).

While Maissel discloses transmitting the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (transmitting updates to the program guide data with the television programming during the daily or monthly period the preference profile is locally stored before upload; page 16, lines 12-17 and page 30, lines 20-27), he fails to specifically disclose *only* transmitting the content data and the meta information and wherein the

inference rules defines a rule for which an attribute value is newly obtained from a relation between segments.

In an analogous art, Hendricks discloses a television distribution system (Fig. 1; column 5, lines 23-50) wherein only program guide text (metadata information; column 19, lines 14-26) and television programming are transmitted (wherein the television programs are transmitted independently of the program guide; column 6, line 62-column 7, line 43) when program guide data is already stored locally (template data required to construct the guide for display; column 11, lines 1-12, column 13, lines 51-67 and column 24, lines 7-41) for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted (column 13, line 51-column 14, line 6 and column 23, line 60-column 24, line 15).

Additionally, in an analogous art, Cobbley discloses a broadcast system (Fig. 1) wherein viewers may search meta data to identify particular content (column 10, lines 7-38) utilizing a rule to identify newly obtained attributes from a relation between segments (column 12, lines 3-24) for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner (column 1, lines 24-65).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel's system to include *only* transmitting the content data and the meta information, as taught by Hendricks, for the typical benefit of reducing the system's bandwidth requirements by limiting the amount of information which needs to be re-transmitted.

Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify Maissel and Hendricks' system to include wherein the inference rules defines a rule for which an attribute value is newly obtained from a relation between segments, as taught by Cobbley, for the typical benefit of allowing users to quickly and easily access broadcast information in an efficient manner.

As to claims 21 and 22, Maissel, Hendricks and Cobbley disclose converting means for converting the format of the meta information into a transmission format (wherein the guide information must be formatted for transmission over the television broadcast channels; see Maissel at page 16, lines 12-17).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning facsimile transmissions and mailing, respectively.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Sheleheda whose telephone number is (571) 272-7357. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on (571) 272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James Sheleheda
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JS

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